

I subsequently requested Mr. Reeve, the able and intelligent curator of the Norwich Museum, to examine the somewhat extensive series of Golden Eagles in that collection, for the purpose of ascertaining whether similar white scapular spots exist in any of the specimens there deposited. Mr. Reeve informs me that in one example only has he detected this peculiarity, viz. in an immature male bird from southern Algeria. This appears to prove that although my bird was so long in acquiring the white scapular spots, they are sometimes assumed much earlier, and confirms the statement in Messrs. Jaubert and Barthélemy-Lapommeraye's work, that, in some instances at least, these distinctive marks are apparent in *Aquila barthelemyi* immediately on quitting the nest. The Algerian specimen above mentioned, and a German one which is alluded to by the authors of 'Les Richesses Ornithologiques,' are, so far as I know, the only specimens of *Aquila barthelemyi* which are recorded as having been obtained out of France.

It seems, therefore, that the title of this singular race of Eagles to be considered as specifically distinct from *Aquila chrysaëtos* merits careful consideration and further observation from those ornithologists who are interested in the study of the birds of prey.

XXVII.—*Notes on the Ground-Parrot of New Zealand* (*Strigops habroptilus*). By JULIUS HAAST, of Canterbury, N. Z.*

AMONGST the remarkable birds of New Zealand, the *Strigops habroptilus* (called "Kakapo" by the Maories, and "Ground-Parrot" by the settlers) occupies a prominent place, not only on account of its size, but likewise on account of its mode of life and its manner of forming an habitation. Very little is known about this inhabitant of our forests; so that the communication of some observations which I made during my last trip to the west coast may be considered interesting. During several years I have travelled in the interior of New Zealand, but not until

* Translated from the 'Verhandlungen' of the Zoological and Botanical Association of Vienna, of October 10th, 1863.

my last journey have I been able to see or learn anything about the natural history of this bird, although I had often heard its call and seen its footmarks in the river-beds and on newly fallen snow. The principal reason why I never caught or even saw this bird (which, by the way, is not at all scarce in certain parts) is, doubtless, because I never had a dog with me; for without a dog it is only by accident that one even sees it.

The principal resorts of the Kakapo are the grass-plots in the open and mossy beech-woods near mountain-streams, and rocky declivities, beneath large moss-covered stones, overgrown by beech-roots; also the mossy banks of the larger rivers, which are flooded now and then in consequence of a sudden thaw or heavy rains. On the western slope of the Alps, as we go deeper into the forests, the grain-eating birds grow less in number; and only where fir-trees are met with, Pigeons or "Kakas" (*Nestor*) are found. Further on still in the central chain of mountains they disappear likewise; and even the Wood-hen, or Weka (*Ocydromus*), is only found in those small districts near mountain-streams where the forest is interrupted by grass-plots and brush-wood. In the beech-forests of this subalpine region, where vegetation is most exuberant, and where the contemplation of the deep green of mosses and ferns refreshes the tired traveller, animal life is very scarce, and only the Kivi (*Apteryx*), two small insectivorous birds—the native "Robin" and "Wren"—and the Norwegian Rat (which has even here driven away the native Rat, and usurped its place) are to be found. Here then is the spot where the "Kakapo" finds shelter and support; whilst above, the less magnificent but still handsome *Nestor notabilis* and *N. eslingii* feed on the seeds of the numerous shrubs and the roots of alpine herbs.

It is remarkable that the Kakapo is never found on the eastern side of the Alps, though extensive beech-forests are to be met with there also. The only part excepted is the valley of the Makavora River, which forms the Wanaka Lake. It appears therefore to be confined to the western slope of the principal mountain-chain, and only to pass over the low and wooded defile that leads from the sources of the Haast River to those of the Makavora. Even here, however, it is not found beyond

the mouth of this river near the Wanaka Lake, as lower down there are no forests. The Kakapo is very frequent in the valley of the last-named river and in the Makavora forest, though many woodcutters are constantly employed there. When we camped on the outskirts of this forest, we heard its call continually; but none of the woodcutters seemed to be aware that a bird of such large size was near them, though its unusual piercing call had aroused their attention. In the Wilkin valley (where I found traces of wild dogs) the Kakapo is less often found; and in the Hunter valley, containing large beech-forests, and divided off by a not very high chain of mountains, it is not to be met with at all.

It is not my intention to give a minute description of the Kakapo; but I will only observe that kind nature has given to this helpless animal, for its own preservation, a plumage so like moss in outward appearance that it is difficult to distinguish one from the other at even a short distance. The black hairy feathers on each side of the beak give it a somewhat wild appearance; and the curious radiating wreaths of feathers round the eyes make it look like an Owl; but the large Parrot-like beak and the two reversed toes determine at once the affinities of the bird. Until now it has been supposed that the Kakapo was a night-bird, but my own observations have convinced me that this is not exclusively the case. It is true, however, that its call is mostly heard about an hour after sunset, at which time it commences to roam about, where the thick foliage creates a kind of artificial darkness. Upon one occasion, about the time just mentioned, a Kakapo came up close to our tent, attracted, no doubt, by the light, and was caught by my dog; but on two other occasions I saw this bird feeding in the daytime, and apparently very careful to avoid any coming danger. The first time I saw a Kakapo by daylight was on my return from the west coast. It was afternoon, and the sky rather cloudy. The bird was sitting on a stump in an open part of the forest, not far from Haast River. On my approach it disappeared quickly, but was nevertheless caught by my dog. The second time I saw the bird in daytime was in a mountain-pass, where it (a large specimen) was sitting on a Fuchsia-tree,

10 feet from the ground, and eating berries. As soon as the bird saw me, it threw itself off the tree as if it were shot, and escaped under some large fragments of rock. The most surprising thing was that it did not open its wings, nor use them in any way to break the fall. It is strange that a bird with well-formed wings should prefer to use its feet as a means of locomotion, especially as the feet seem rather formed, judging from the position of the toes, for the purpose of climbing than for walking or running. This seems to be a case that clearly proves that variations in form adapt themselves to the mode of life. On examining the wings, I found them easily moveable, and in no way different from other varieties of the *Nestor* family. The wing-feathers are well formed; but the wings are not only very fleshy, but the tendons are likewise very thin and imbedded in fat, apparently in consequence of their not being used. To try whether the Kakapo would not fly, or at least flutter, when pursued, I had a large specimen, captured by my dog without its being injured, brought to an open place, where there was sufficient space to open its wings whilst running, even supposing a large space were required for the purpose. But, instead of attempting this, the bird, when released, ran towards the nearest thicket, moving much like a Fowl, with a celerity that, considering the position of its toes and its unwieldy form, greatly surprised me. During this experiment I had posted myself sideways from the bird, and it appeared to me that the wings were closely pressed to the body; but some of my companions, who stood behind, observed that the wings were slightly open, more, apparently, for the purpose of preserving a right balance than to aid it in running. Though the Kakapo's body does not seem formed for much locomotion, it roams to considerable distances at times. On one occasion we found the impression of its feet in sand more than half a mile from the river's bank. The crops of those we examined we generally found filled with minutely divided moss, in enormous quantities. They were greatly extended, and sometimes so heavy that a single one weighed several ounces. An exception to this we observed in two specimens which had eaten the berries of a species of *Coriaria*, which gave a peculiar smell to the flesh. The bird

appears much smaller when the crop is empty. The mass of this little nutritious food which the bird must collect shows why it lives on the ground, and in barren and unproductive districts where no other species of the same family could exist. Another peculiarity, perhaps likewise resulting from its vegetable diet, is, that the bird, instead of having, like others, an oily soft kind of fat under the skin, possesses a great quantity of firm and white fat. Its flesh is better and more substantial than that of any other species of Parrot, and of exquisite flavour. To travellers in the wilderness this bird is a great dainty, and I can well understand that the old Maori from the west coast, who accompanied us, felt his mouth water when anybody mentioned the Kakapo.

It is certain that a bird unable to fly, no matter how strong its claws and beak are, could not defend itself from its enemies by merely climbing trees or hiding in holes in the earth. We may be sure that wherever man, with his two domestic animals, dog and cat (many of which have become wild here), has not yet been, the Kakapo is to be found in great numbers; and that, before the appearance of man, neither the native dog "Kuri" (now no longer to be found) nor any other animal existed that hunted birds for its support. Equally certain is it, that those quadrupeds, traces of the feet of which have been found on alpine river-beds, but none of which have ever been seen or obtained by scientific travellers, must subsist entirely on fishes. My examinations of the subterranean habitations of the Kakapo corroborate these opinions. I expected to find the Kakapo in well-excavated caves, with entrances which would only permit the inhabitant to enter—something like the lair of a fox or badger. Such, at least, the natives assured me to be the case; but I found, with the exception of a single instance, that the habitations consisted of clefts or fissures in rocks, holes between the roots of decayed trees, or natural openings between fragments of rock, where my large dog easily entered, and generally returned head foremost, carrying his prey in his mouth. This proves the dog must have been able to turn round when within. At first my dog was severely punished by the beak and claws of the Kakapo; but, after a little experience, he learned how to grasp the bird

through its head at once. The Maories told me the Kakapo was a very valiant bird, and often fought successfully with their dogs; but this is scarcely credible, unless their dogs are a very weakly race. My dog, though punished at times, never had a serious battle with one of them. The Kaka (*Nestor meridionalis*) is a more respectable opponent. With outspread wings he throws himself on his back, and defends himself stoutly with his beak and claws. As I previously observed, the Kakapo sometimes lives in places liable to be flooded. When this occurs, it is, of course, obliged to escape; but I do not believe that it is able to climb trees,—at least, I never saw it do so when pursued by a dog. Upon one occasion, however, a Kakapo climbed a half-fallen tree-stump, and remained at the top until my dog desisted in his endeavours to capture it. All the habitations of the Kakapo that I examined were natural caves or holes, with the exception of one, which was artificially excavated. On the northern part of the Haast River, near the mouth of Clark River, the river-bank had, in consequence of an accumulation of deposits, reached a height of from 6 to 8 feet. I observed here several round openings, not large enough for my dog to enter. After smelling about for some time, he commenced scratching the soil at a place where, as I subsequently perceived, the end of the hollow was situated, and caught the bird. This shows conclusively the ability of the bird to dig and excavate. The Rev. Mr. Taylor says, in his work ‘Te ika a mauī,’ that the Kakapo lives in flocks; but, according to my own observation, the contrary seems to be the case. I have never found more than one bird in a hole; but very frequently I observed, at a distance of 20 to 30 yards from the first, a second hole, and the bird in this was generally of a different sex from the one in the first excavation. Our camp-fire was several times visited by a pair of them. It appears therefore to me that the birds live singly, but that at night they go together in pairs for the double purpose of feeding and copulation.

I know nothing about the nesting of the Kakapo; but when the female roams about with her young, she utters a peculiar call, more resembling the grunting of a pig than anything else. The Rev. Mr. Taylor enumerates two kinds of Kakapos on the

northern part of the island. There are not two kinds between Lake Wanaka and the west coast. I have examined more than twenty specimens, and all of them belonged to the same species. They were about as large as a well-sized Fowl, therefore rather larger than the Kiwi, which I likewise found during this trip.

I do not know whether a specimen of this interesting bird has ever been preserved in spirits and sent to Europe, to determine whether the osteology agrees with that of other birds. Our provincial government is organizing extensive scientific expeditions for the thorough examination of the west coast; and it is to be hoped that we shall soon obtain live birds of this species to examine and ascertain all those details about them which want of time during my voyage prevented me from doing.

XXVIII.—*A Sixth additional List of Birds from Natal.*

By J. H. GURNEY, M.P., F.Z.S.

(Plate IX.)

I HAVE the pleasure of communicating to the readers of the 'Ibis' some further notes on the birds of Natal, which have been forwarded to me by my friend Mr. Ayres, with an additional collection of the birds of that colony.

The remarks which I have appended to some of Mr. Ayres's observations are distinguished by brackets and initials, as on previous occasions.

218. *GYPÆTUS MERIDIONALIS*, Bp. Southern Lammergeyer.

Male. Immature. Iris very light greyish brown, surrounded by a broad and bright ring of scarlet; the eye very small for the size of the bird; bill pale, cere and base bluish; tarsi and feet ash-colour. The Lammergeyers are not at all plentiful here; they are very seldom seen on the coast, principally confining themselves to precipitous country more inland. The only locality in which I have yet seen them has been amongst the rocky hills of the Inanda location, or thereabouts, where they sail slowly about in search of their food, generally singly, but occasionally in pairs.

Their flight so much resembles that of the larger Falcons that, on shooting a specimen, I was much surprised and disappointed to find so much of the Vulture about it.